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ORIGINAL DEPARTMENT.

LECTURES

ON

EXPERIMENTAL PHYSIOLOGY.

Delivered in the Physiological Laboratory of the University of Pennsylvania,

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Reported for the MEDICAL AND SURGICAL REPORTER.

(Continued from page 315.)

Lecture IV.—Gastric Digestion.

GENTLEMEN:—The study of gastric digestion, which we take up to-day, is more especially a study of chemical changes. We saw that in the mouth the food was not only subjected to the chemical changes of the saliva, but that through the mechanical changes resulting from mastication and its close combination with the saliva, the materials destined to nourish the body were brought into the most favorable conditions for subjection to the various solvent juices of the economy. The first of these which we will examine is found in the gastric juice.

In following a strict anatomical progression of the food after leaving the mouth, we should naturally study the functions of the pharynx and œsophagus, but since no changes that we are aware of occur in the food in these localities, and as experiments on deglutition cannot be made on narcotized animals, we must omit them, as other more important subjects await our attention. For the same reason no experiments will be made upon the mechanism of vomiting. There is, however, one interesting experiment on deglutition that I will show you. You know that the inferior portions of the œsophagus are supplied by branches from the pneumogastric

nerves. When these nerves are divided in the neck a peculiar train of symptoms usually manifest themselves. In the first place, after this operation animals are usually averse to taking food, even though they have been fasting for some time, from which it was originally concluded that section of these nerves abolished the sensation of hunger. When, however, animals in this condition can be prevailed upon to take food, symptoms of suffocation soon supervene, followed generally by the regurgitation of the food just taken. This is not a true vomiting of the contents of the stomach, for none of the food which has been swallowed has entered that organ. The œsophageal orifice of the stomach is found to be tightly contracted, and the food collects in the distended œsophagus, until the orifice of the larynx is occluded, when, of course, fits of suffocation occur. Usually, if the animal does not die in the interval, this condition passes off at the end of two or three days. I will divide the pneumogastrics in the neck of this rabbit, which has fasted for the last two days, and if we can persuade it to take food, we will see these conditions that I have just described. To find the pneumogastric trunks, the animal being fastened on Czermak's holder, and anesthetized, the fur is clipped off the front of the neck, and an incision, about half an inch in length, made over the inner border of each sterno-mastoid muscle. A pair of blunt hooks is used to loosen the connective tissue, and the border of the sterno-mastoid pulled from the median line. Lying underneath this muscle, surrounded by connective tissue, is seen the carotid artery, and in its sheath three nerves, the vagus, the sympathetic and the depressor.

The vagus is the largest and most prominent, lies to the outside, and is of a striking white hue; the sympathetic is smaller, more transparent, and grayish in color; while the depressor is a very minute nerve, which is not found usually without some difficulty, and is not apt to be mistaken for the vagus. These nerves are to be gently isolated by blunt hooks, and a thread passed under each vagus, which can then be divided with scissors. We will allow the animal to recover from the chloroform, and then try to make it eat. Fortunately for our experiment, it eats the cabbage which we have given it with great voracity, and in a few moments symptoms of suffocation appear; it, however, recovers, goes on eating, and is again choked. I will now kill it by puncturing the medulla, which destroys it instantly, and open its body. The œsophagus is filled, from the stomach to the pharynx, with unaltered food. The stomach also contains some vestiges of food, but you know that in rodents, even when starved to death, the stomach is never found empty.

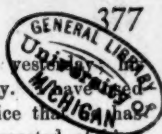
In our experiments on the saliva we established the precedent of performing acts of digestion, or at least acts introductory to digestion, outside of the body, the natural conditions being preserved as far as possible. In our studies of gastric digestion we will find that this step was not unwarranted. All the phenomena of gastric digestion can be as completely and more conveniently studied in an artificial stomach as in the living organ—a fact demonstrative of the essentially chemical nature of the process. To obtain the gastric juice for these experiments, an operation, the formation of a gastric fistula, is necessary. With a fistula we can not only obtain gastric juice in a state of purity, but can observe the process and conditions of its secretion. By means of a fistula we can also introduce various substances directly into the stomach, without their becoming mingled with saliva, and study step by step the changes in their character; the time necessary for their digestion; the movements and temperature of the stomach, and, in fact, all the manifold phenomena of gastric digestion.

I will now perform this operation of making a gastric fistula before you, in the manner perfected by Bernard. The question first arises, what animal shall it be made upon? We must select an animal in whom the stomach is large and easily dilated, and at the same time lies close to the abdominal walls. For this reason the horse is inappropriate, though excellent, when attainable, for salivary fistulae, since in them the

stomach is small, deeply seated, and of slight functional importance; on the other hand, rabbits cannot be employed, since their stomachs are never empty, and cats are very liable to die of peritonitis, to say nothing of the difficulty in their subsequent management. In some birds with a muscular stomach, as, for example, in a crow, they can be very satisfactorily made. The animal, however, which is, on all accounts, most suitable, is the dog. Dogs are easily managed, secrete pure gastric juice in abundant quantities, and are not very liable to peritonitis. I will, therefore, perform the operation on this dog which has just been brought in, already chloroformed, and secured in Bernard's holder. The first step is to shave the hair from the abdominal wall, in the epigastric region, and remove *all* the hairs carefully with a sponge, so as to prevent their entering the abdominal cavity. An incision is then made through the skin, commencing at the lower margin of the costal cartilage, and about an inch and a half to the left of the linea alba, and extending downward parallel to this line, for a distance a little less than the diameter of the flange of the canula which it is desired to use. Each muscular layer is then to be divided, in a direction parallel to its fibres, every bleeding point being tied before the peritoneum is opened, so as to prevent the entrance of blood into its cavity. When it is certain that all the bleeding has stopped, the peritoneum is to be opened on a director. On stretching open the wound, the stomach, (which should have been distended before the operation, by a full meal, or by inflation with air, by means of a tube passed down the œsophagus) comes into view, its oblique muscular structure being plainly visible through its serous covering. A point of the gastric wall should now be seized with artery forceps at a spot where there are not many vessels, and drawn forward. Two strong silk threads are then passed into the walls of the stomach with a curved needle, at a distance from each other about equal to the diameter of the tube of the canula, and brought out again at a similar distance from the points where they were introduced. I will now make an incision into the gastric walls between the two threads, rather shorter than the diameter of the tube of the canula; immediately some bubbles of gas escape, and some of the fluid contents of the stomach, which must be sponged off. The opening into the stomach is now to be stretched with a pair of blunt hooks, until it is large enough to pass the inner flange of the canula, which is to be then introduced and pushed into the stomach up to its outer plate. I will now tie

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Lecture.



the stomach to the canula by the threads which have been introduced, and then pass their ends through the abdominal wall in such a way as to fasten the stomach to it, and at the same time, when again tied together, keep the edges of the wound in the abdominal walls in apposition. This suture need not be carried through the peritoneum, and no additional means of closing the wound is necessary. The operation is now finished, and the animal may be allowed to come up from the chloroform. The canula must be left uncorked for at least half an hour after the operation, for the dog is almost certain to vomit, and otherwise the contents of the stomach would be apt to be forced past the side of the canula into the abdominal cavity, and cause the certain death of the animal.

The animal must be fed on milk for two or three days after the operation, and kept in a warm place. While recovering from the anæsthetic, the animal will very likely make attempts to tear out the canula with his teeth, a result which would be very apt to be fatal, though the dog which I will show you in a few moments tore out the canula four times after the operation, and I was compelled to re-insert it each time, without, however, any bad results to the dog. The only way this accident can be guarded against is by careful watching. It will not do to muzzle him and leave him, for if he then should vomit he will choke to death.

After the first day the wound becomes so tender that no further attempts at tearing out the canula are usually made. The form of canula almost universally used is that designed by Bernard. It consists of two silver or nickel-plated tubes, each of which has at one end a broad flange; one tube screws into the other, so that the distance between the two flanges can be altered at will. On the second or third day after the operation the margin of the wound becomes very much swollen; this arrangement of the tubes permits the lengthening of the canula so that the skin is not ulcerated from pressure of the flange. The canula may be closed by a cork soaked in a decoction of colocynth, to prevent the dog tearing it out with his teeth, or with a valve such as this one. If everything goes well this dog that we have just operated on will be ready for experiment in about a week. In the one that I now show you I operated about six weeks ago, and although, as I told you, he tore the canula out four times, thus necessitating four operations, the wound is now firmly cicatrized, and the animal is in good health and spirits. In order to collect a pure specimen, the

dog has received no food since ^{vested} the stomach will, therefore, be empty. ^{have} him so often to obtain gastric juice ^{has} now learned perfectly what is expected of him, and he will jump on the table when I call him, and stand perfectly motionless until I have finished with him. I will open the valve and tickle the inner surface of the stomach with a feather tied to a glass rod, and the gastric juice flows along the rod, drop by drop, into the glass beaker. Bernard's method of stimulating the flow of gastric juice was to give a dog which had been fasting for some time, a hearty meal of thoroughly boiled tripe, which furnished a normal stimulus to the gastric glands, and being quite indigestible, does not contaminate the gastric juice with peptone for some time. It is undoubtedly preferable to mechanical stimulation, on some accounts. Gastric juice is thin, almost colorless, and slightly opalescent. When tested with litmus paper, it gives a decidedly acid reaction; its specific gravity is about 1.010. The most prominent feature of its chemical composition is its excess of free acid, the nature of which, however, is still a subject of controversy, though the majority of observers testify to the presence of large amounts of lactic acid, while there is considerable doubt as to whether hydrochloric, which is also claimed to exist, is not formed in the process of examination, from the decomposition of the chloride.

The important organic constituent of the gastric juice is termed pepsin. It is obtained by a process analogous to that which we employed in separating ptialine from the salivary glands. The stomach is removed from a recently killed animal (pig, rabbit, dog, etc.), its contents removed, and its mucous surface washed with a gentle stream of water. The pyloric end is then cut off, and the remainder stretched out flat on a board, and the mucous membrane carefully dissected off from the underlying muscular layers.

The mucous membrane is then minced into small pieces, placed in absolute alcohol for twenty-four hours, to precipitate the pepsin in the gland tissue. After filtering off the alcohol and drying the pieces with filtering paper, they are to be removed to glycerine, and allowed to stand for several days. The glycerine can then be filtered off, first through muslin and then paper, and pepsin precipitated as a fine flocculent precipitate from the filtrate by the addition of a large excess of absolute alcohol. The alcohol is again to be filtered off, and the pepsin remaining on the filter may be dissolved by two per cent. muriatic acid. To obtain acid of this

strength, since the ordinary strong muriatic acid, specific gravity 1.16, contains 31.8 per cent. by weight of the gas HCl , 6.25 cc. of this acid is to be mixed with enough distilled water to make one litre, so giving an acid which contains two per cent of HCl gas, an acid about the strength of the gastric juice.

Let us now examine a few of the reactions of pepsin in the solution thus obtained. In the first place, we must test its purity, to see that we have no proteid results of gastric digestion mixed with our solution. It does not respond to the xanthoproteic reaction, thus showing the absence of albuminoids. I will now add a little concentrated nitric acid. No precipitate. A little tannic acid, iodine, mercuric chloride, with the same result, there is no precipitate. It is precipitated, however, as you see, by a solution of acetate of lead, and also by platinum chloride. I have here four or five specimens, obtained from different sources, of what is known in commerce as pepsine; though, as you see, from the tests, none are pure, while they have little if any digestive value.

The characteristic test of the presence of this ferment is known as the *pepsin test* with fibrine. I have here a little fibrine which was obtained by whipping the blood as it flowed from a divided vessel; it was then washed until perfectly white and preserved under glycerine, from which it must be cleansed for use by washing. Two hours ago I placed a small piece in this test tube, with a little gastric juice, and placed it in the water bath at 35°C . The fibrine has disappeared, and the fluid is more opalescent than before. There is no precipitate upon boiling, and a very slight one upon neutralization. In this other tube, about a quarter of an hour before the lecture, I placed another fragment of fibrine, with gastric juice, and you see, as a sign of the first stage of digestion, the fibrine is swollen and more transparent than before. Since no other substance will produce these effects with fibrine, they are characteristic of the presence of pepsin with a dilute acid.

You can readily appreciate the importance of this reaction, as, for instance, the power it gives us of locating the situation of peptic digestion in the alimentary canal or tissues of the invertebrates.

This process, with this end in view, has been considerably elaborated by Brücke, but for its additional details I must refer you to his original memoir or the abstract published by Brunton in the Handbook of the Physiological Laboratory.

I told you a few minutes ago that all the phe-

nomena of gastric digestion could be more conveniently studied outside of the body, and I should have added, with an artificial juice. In the first place, it is evident that only a limited amount of gastric juice can be obtained from any animal for experimentation, a disadvantage not applicable to an artificial digestive fluid. In the second place, the method of introducing substances (confined in gauze sacs) into a stomach cannot but furnish unreliable results, for, while all the peptones cannot be collected in a state of purity for examination, the diminution of weight of the substance introduced will not even be equivalent to the amount which has been digested, since much that has been merely disintegrated and not digested by the gastric juice, must escape through the meshes of the sac. The method of *infusion*, however, that I will show you directly, is not open to these objections. An artificial gastric juice of considerable purity may be obtained by mincing the mucous membrane of a stomach (of almost any animal) and covering the pieces with strong glycerine. In a few days the glycerine will become strongly impregnated with pepsin, and may be preserved for almost any length of time. The addition of a few drops of this extract to 100 cc. of muriatic acid of 0.2 per cent. will yield a fluid of high digestive power. Here is a specimen I obtained six months ago, and it is still strongly active. An artificial fluid may also be obtained by rubbing up the minced mucous membrane, from which the mucus has been removed by gentle scraping, in a mortar, with clean sand, or powdered glass and water. It should then stand for some hours, being occasionally stirred and finally filtered. The filtrate will contain pepsin and a small amount of peptones; added to an equal bulk of HCl , 0.2 per cent., it will form a powerful digestive fluid, which can be kept for a long time, not even losing its powers when mouldy. The fact that a digestive fluid can be thus obtained, shows us that pepsine is soluble in water. Let us now examine the digestive action of gastric juice, employing the method of infusion or auto-digestion of the stomach recommended by Schiff. The day before yesterday I tied the portal vein in a dog, and in about an hour and a half it died, under the well known symptoms which follow this lesion, somnolence, coma and progressive insensibility. I then removed the stomach, minced it into small pieces, and infused them in 400 cc. of HCl , 0.2 per cent., for nine hours in the warm bath at 40°C . At the end of this time the fragments of the stomach were almost entirely liquefied; the

small, pulpy, yellowish residue now in the filter is all that remains undissolved. This method of auto-digestion of the stomach has been selected as apt to give the best general idea of the action of gastric juice.

In the structure of the stomach are found the principal animal substances which serve as nutriment. We find the albumen and fibrine of the blood in increased quantity, since the ligation of the vena porta produced repletion of the gastric vessels, the muscular tissue of the organ and the connective tissue, which, in a slightly modified form, finds its equivalent in gelatine. We are assured of the fact of our having obtained a veritable solution, and not a mere suspension of the disintegrated stomach, by the fact that all the liquid has passed through the filter, it is clear, uniformly yellowish, and the microscope reveals no solid particle, while the mass on the filter bears a very small proportion to the quantity of solid material in the tissues of the stomach. It is also capable of dialysis. Admitting, then, that the albuminoid materials of the tissues have been dissolved by the gastric fluid, we have now to see in what form they are present in our solution.

You know that albumen is precipitated from its solutions by boiling or by a concentrated mineral acid; in this instance neither boiling nor the addition of nitric acid causes any precipitate. If the albumen is present in our solution, it must be in a modified form. You remember I showed you, when considering the composition of saliva, what is called the xanthoproteic reaction, a test indicative of the presence of an albuminoid. I will boil the specimen to which I added nitric acid, and it becomes strongly yellow; the addition, when cold, of ammonia, will turn the yellow into a bright orange. There is also another test known as Millon's reagent for albuminoids. It is made by digesting equal weights of pure nitric acid and mercury over a sand bath until the mercury is entirely dissolved. It is then added to twice its bulk of cold water, and placed aside for some hours. The white crystalline precipitate which has then settled may be removed by filtration, giving a clear, yellow filtrate, which is Millon's reagent. To another portion of this gastric solution I will add a few drops of Millon's reagent, and boil. There is a yellowish-red precipitate. I will now carefully add, drop by drop, a little liquor potassæ to another specimen, until the fluid is perfectly neutral, and there is now a faint precipitate. I will refer to this, which is parapeptone, again. The application of Millon's test to this neutralized specimen, from which the

syntonin has been filtered off, now causes a white precipitate, and on boiling it becomes a rosy pink. These tests show that albumen does not exist in its usual form in this fluid; it has not been destroyed by the gastric juice, but merely transformed, still answering to the reactions of the proteid group.

Remembering, then, these facts for future comparison, viz., that the gastric juice, after death, will convert the albuminoid material of the stomach into a modified form of the proteid group, let us examine a little more closely, with an artificial fluid, the conditions which modify this transformation, and the characters of the products thereby produced. In the first place, you know that when albumen is subjected for some time to the action of a dilute acid, it is so transformed as not to be precipitated by boiling, while another substance altogether, syntonin, or acid albumen, is formed.

I have prepared a solution of egg albumen, by pouring the whites of two or three raw hen's eggs into a glass beaker, and then cutting them up with a pair of scissors, to liberate the albumen from the meshes of fine membranes which confine it. After stirring vigorously, it was then pressed through muslin and mixed with an equal bulk of water, and allowed to stand for several hours. It was then filtered, and as it very soon chokes up the meshes of the filter paper, it is better to use a number of small filters rather than one large one, changing them as soon as they become clogged. Filtration is also much facilitated by the use of Bunsen's air pump.

Into this beaker I placed, two hours ago, equal bulks of dilute egg albumen thus obtained, and muriatic acid 0.2 per cent. It was then placed in the water bath at 40° C. When first placed in the bath, boiling caused almost complete solidification of the specimen examined, from coagulation of the albumen; now, however, you see that boiling does not even produce turbidity. I will now carefully neutralize a portion of this fluid, by introducing a drop of litmus solution, and then adding, drop by drop, liquor potassæ, until the red litmus becomes violet, and you see there is a decided precipitate. This is acid albumen, syntonin, or parapeptone. I will now filter off this precipitate, and boil the filtrate, which, you remember, is neutral. There is no precipitate; I apply Millon's test; there is no reaction. Not only has all the albumen been converted into syntonin, but there remains in the filtrate no other number of the proteid group. This, then, is an analogue of the precipitate which was obtained upon neutralizing the pro-

ducts of auto-digestion of the stomach, and we now see that it may have been due to the action of the acid on the albumen. Are we to infer from this that the *acid* is the important factor in gastric digestion? I have here four test tubes; in No. 1 I placed yesterday 5 cc. of muriatic acid 0.2 per cent. 2. In 11 5 cc. of artificial gastric juice, made by adding a few drops of glycerine pepsine extract to dilute muriatic acid, as already described; in III 5 cc. of the same juice, carefully neutralized, and in IV 5 cc. of the same juice, thoroughly boiled. Into each I placed a small cube of coagulated white of egg, the same weight being placed in each tube. They were then all placed in the water bath at 40° C. At the same time I also prepared duplicates of No. 11. One was surrounded with ice, and the other kept at the temperature of the room. Upon examining them, we see that in 1, which contained acid alone, the albumen is unchanged, its corners being as sharp and the fluid as clear as before the experiment. In 11, which contained the artificial gastric juice, the albumen has entirely disappeared, with the exception of a very minute portion, while the fluid appears slightly opalescent. In III, which contains gastric juice neutralized, or in other words, pepsine alone, and in IV, which contains gastric juice boiled, there has been no change in the albumen. We learn from this, then, that coagulated albumen is not dissolved by acid alone, or by pepsine alone, but that their combination is necessary for their solution; while we also learn that pepsine is destroyed by heat, and by referring to our other tubes, that cold prevents gastric digestion, the albumen in the tube which was placed in the ice having undergone no solution, while the corners have merely been rounded off the cube of albumen in the digestive fluid which was kept at the temperature of the room. If, however, we place the tube which was in the ice in the warm bath, the albumen will be digested; its solution was merely suspended by cold. It is, however, destroyed by boiling.

I have here an experiment devised by Grünhagen, to show the influence of pepsine on digestion. Before the hour I placed a small quantity of fibrine in HCl. 0.2 per cent, and you see that although it has not been dissolved, it is swollen to a stiff jelly. I will throw it on a filter moistened with the same muriatic acid, and allow all the acid to drain off. In a few minutes the acid has all filtered away, and the fibrine remains in the filter. I will now pour on the fibrine two or three drops of glycerine pepsine extract, and almost immediately a fluid drops from the funnel.

Testing a portion of it with the xanthoproteic test we get the reaction of albuminoid, and on neutralization get a deposit of parapeptone. The fibrine has been digested. You also learn from this that gastric digestion reduces solids to a fluid form, while you saw in the pepsine test that the first sign of digestion of fibrine was its increase of size.

We have seen, then, that a combination of pepsin and acid are necessary for digestion, and I may perhaps mention here that they are pretty generally supposed to unite and form a new compound, pepto-hydrochloric acid. While this idea has not been demonstrated, there are, nevertheless, many points in its favor. We have seen that their combination produces effects which neither are able to produce alone, and in that combination their individual properties are modified. For example, dilute acid extracts all the salts from an albuminous body, leaving a gelatinous residue, while the combination of acid and pepsin dissolves the gelatinous portions, and leaves a residue composed mainly of inorganic salts. Then, again, acid combined with pepsin renders the latter capable of dialysis, a property unpossessed by pepsin alone. Whatever may be the combination, however, pepsin seems to supply the place of prolonged boiling, since results almost identical to those of gastric digestion can be obtained by boiling albuminous materials for a long time in water, or for a less time with dilute acid. The pepsine appears to supply this element of heat and time, and in some manner facilitate the splitting up and hydration of albuminous compounds in an acid fluid.

Pepsine, like other ferments, is not destroyed in the exertion of its function, but, unlike most other ferments, a limited amount of gastric juice will not digest an unlimited amount of albumen. In this test tube I placed, in artificial gastric juice, several days ago, a small piece of fibrine, and when it was dissolved, another piece, and so on, until there was no further solution. The cessation of digestion, however, was not due to the destruction of the pepsine, but to diminution of acidity and to the accumulation of peptones, for when I added the same amount of fibrine to the same amount of gastric juice in a dialyser, the peptones diffused and solution was not checked. Also, by adding water to the tube in which digestion had stopped, the peptones were diluted, and digestion recommenced, though in a feeble degree. The addition of acid under the same circumstances would have still more strongly facilitated solution. This, however, is a condition of affairs which is not apt to occur in

the stomach, for as the peptones are formed they are absorbed in great part by the gastric vessels, and the effect of their accumulation thus prevented.

HOSPITAL REPORTS.

PENNSYLVANIA HOSPITAL.

SURGICAL CLINIC OF DR. R. J. LEVIST
SERVICE OF 1879.

Reported by N. H. CHAPMAN, M.D.

Two Results of Syphilitic Infection. Destruction of the Tongue, and Stenosis of the Fauces. Operation for Stenosis.

GENTLEMEN:—I have two very interesting cases of specific disease to show you this morning. They are both exceedingly well marked and characteristic. Indeed, it would be hard to find better illustrations of the extremes of syphilitic ulceration. I bring them in together, that you may not only compare their common features, but contrast their points of dissimilarity as well.

If you will look into the mouth of this middle-aged man, you will notice that the tongue is almost entirely destroyed by ulceration. Only a very small portion of it, upon the right side, far back toward the base, has escaped. The destruction is so extensive that the tongue has been eaten away clear down to its base, and you see very little but the floor of the mouth. The half arches of the palate and the uvula have not been exempt from this destructive ulceration. Considerable portions of them are gone, and the opening into the pharynx is thus rendered very much larger than normal.

All this is in marked contrast to what you will see by looking into the mouth of this boy. Here the opening into the pharynx is very small. It would scarcely admit the point of the little finger. The posterior fauces are so narrowed and constricted by cicatricial tissue as to entirely prevent the boy from taking any solid food, and it is only with difficulty that he can swallow liquids. Respiration is also impaired, and he breathes mostly through his nose, but even in this way it is performed with some difficulty.

In this case, which is the most marked example of stenosis of the fauces that I have ever seen, there is nothing definitely known as to the family history, but the cause is undoubtedly a congenital taint of the system. If you will notice his teeth, it will be seen that they are irregular, pointed, peg-shaped, and in places slightly notched. Though these are not the typical notched teeth described by Mr. Hutchinson, and known as the "Hutchinson teeth," yet they are sufficiently characteristic to indicate the presence of syphilis in its congenital form.

These two cases, then, are due to a similar constitutional infection. In the case of the man, however, it is not congenital, but has been acquired. His case has not yet gone so far as to give that marked constriction of the fauces which is seen in the boy. But in time the cicatricial contraction must be the same, or perhaps, considering the extent of the ulcerated parts, it may even be still more severe. He has been under

the ordinary anti-syphilitic plan of treatment (bichloride of mercury and iodide of potassium) for some time, and his condition has improved. The rapid progress of the ulcer has been checked, and the extent of surface involved somewhat diminished; but as the parts go on healing, and cicatricial tissue forms, it is to be expected that more or less contraction will take place.

The boy was sent here about a month ago, with the hope that something might be done for his relief. When he came in I did not feel inclined to perform an operation for his relief until I could carefully study and reflect upon the various points of interest which the case presents. Besides this, the boy's general health was considerably enfeebled, from a condition, most likely, of partial starvation; so we began by giving him tonics and nourishing broths in abundance, to prepare him for whatever operation might ultimately be deemed advisable. A number of different plans of treatment have since been considered in connection with this interesting case, with a great deal of care, and, indeed, it has been a somewhat difficult matter to determine just what mode of procedure would be likely to prove most satisfactory. The indication plainly is to enlarge or make wider this narrow, constricted opening from the buccal cavity into the pharynx, and the only question to be considered is how this enlargement can be best accomplished. The mere widening of the fauces by incision is not a difficult matter. In fact, it would be a very simple operation, but it would be only temporary in its effects, for the parts would soon heal and leave the cicatricial tissue as strong and as compacted as ever. I might cut away part of this dense tissue, removing at the same time some of the soft and perhaps a portion of the hard palate, and by so doing secure a permanent result, but this is a more serious operation than I deem necessary. What I propose doing for this boy's relief is nothing more than a rapid mechanical dilatation or disruption of the narrowed fauces. The object being to forcibly dilate the parts as much as possible at once, and then to carefully repeat the stretching process from time to time. In this way we will not only hold all that is gained by the first operation, but gradually force the tissues to relax and assume a more normal condition.

The means of producing this rapid or forcible dilatation of the fauces are very simple. I have a variety of instruments upon the table which might be used. Any one of them, if properly employed, would doubtless answer the purpose. Here is one, known as "the larynx dilator," which might answer very well. This instrument, as you see, is constructed upon the same principle as the obstetrician's speculum, except that it is provided with three valves or blades, instead of two. The intention in using the dilator being to introduce it closed, and then to expand the blades while it remains in position. Or, instead of this, I may produce the dilatation by expanding the blades of an ordinary pair of large-sized lithotomy or stone forceps. The same effect, however, may be produced by introducing a series of very large, solid bougies, passing one bougie after another through the constricted parts, in rapid succession, until a sufficient amount

of distention is secured. This, I am inclined to believe, is the most advisable plan of treatment to be followed in the case before you.

As soon as he is sufficiently under the influence of the anæsthetic (ether, which is taken with difficulty, on account of the impediment to respiration), I will introduce a number of this series of graduated hard rubber bougies which you notice on the table, and see if the effect we desire cannot be produced without materially injuring the surrounding parts. In pursuance of this plan of treatment, I introduce through the narrowed opening, first, the index finger, which is, to say the least, a very close fit, then the middle finger, then a solid bougie, which is somewhat larger than the finger, then one which is still larger, and yet another of larger size still, are all forced through the constriction.

The opening into the pharynx is by this operation considerably increased in size. It is, probably, increased enough for the present, but in order to retain the degree of dilatation which has thus been gained, it is necessary that the passage of the largest bougie just used should be repeated every few days. If this precaution is neglected, the cicatricial tissue will be very apt to contract down firmly, and give as much trouble as before. The bougie may pass with a little difficulty at first, but after it has been used several times there will be no trouble whatever. The resistance offered by the tissues will gradually lessen, and after a time a larger bougie may be substituted without much difficulty. After using this in a similar manner, it in turn may be superseded by one of still larger size. In this way we may continue to force the parts asunder and give the boy the relief he desires. It will necessarily require a little time and patience to carry out this plan of treatment, but I apprehend that the result will be a permanent one.

Varicocele and its Treatment by Subcutaneous Ligation—Dr. Lewis's Operation.

In this robust and apparently healthy young man, twenty-four years of age, I show you what has received the name of varicocele.

Varicocele is a term used to designate an enlargement of the spermatic vessels, or more particularly of the veins within the scrotum. The condition is a very common one. It occurs, to a greater or less extent, in perhaps as many as one out of every nine or ten adult males. It usually makes its appearance between puberty and early adult life; seldom later than this. It is almost a uniformly left-sided affection; in fact, the right spermatic veins are no more liable to become varicose than the superficial veins of the lower extremities or other parts of the body. The reason why the veins of the left side are the ones most frequently enlarged is mainly an anatomical one. The left spermatic enters the renal at right angles, and passes under or behind the sigmoid flexure of the colon; whereas the right enters in an oblique manner directly into the ascending vena cava, and is provided with valves; so that the course of the return blood upon the left side is more tortuous and more difficult than upon the right.

This affection very frequently gives rise to a great deal of mental alarm and anxiety on the

part of the patient. It worries him, and is continually upon his mind. It is, therefore, eminently proper to give relief by a safe operation.

There have been a variety of operations proposed by different surgeons for the cure of varicocele. Celsus recommended the use of strong caustics, to obliterate the enlarged veins. Breschet made use of compression with the pincers. Velpeau made a large needle and a figure-of-eight suture embrace the veins, and Sir Astley Cooper removed a portion of the scrotum. Other surgeons have suggested various operations; but I will show you one this morning which I have employed for a long time, and know to be effectual. It consists in ligating the spermatic veins subcutaneously and adjusting the ligature in such a manner that it will gradually cut its way through the vessels by the ulcerative process.

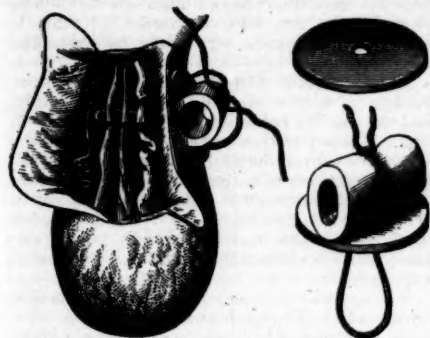
For the success of this operation it is essential that all the enlarged veins should be included in the ligature, and that the vas deferens should be excluded from it. The vas deferens should not, under any circumstances, be ligated with the varicose veins. It must be carefully separated from them and kept out of the way. To do this, push the veins to the outer side of the scrotum, and the deferent tube toward the median line, when the latter will be felt as a round, hard cord, rolling under the finger. If there is any doubt as to whether you really have separated the vas deferens from the enlarged veins or not, just pinch it rather hard, and the peculiar sickening pain that the patient will instantly complain of will tell you whether you are right or wrong.

To perform this operation, you require a long, straight needle, armed with a strong silk cord, a flattened disk, which has a hole pierced through its centre, and a small piece of rubber tubing, or section of gum elastic. The disk may be of any substance which is convenient, as bone, hard rubber, or the like. But a disk which will answer just as well as any of these, can be made by taking a silver quarter of a dollar, or a circular piece of tin, and piercing a hole in its centre large enough to easily admit both strands of the ligature. A silver coin, in which I had previously drilled a hole, is what I employed the first time I performed this operation, and I have no reason to desire anything better.

It is always well to begin this operation with the patient in the erect posture, and finish it with him in the recumbent. The reason of this is, that in examining the parts and transfixing, you want the vessels fully distended, but in tightening up the ligature, no such fullness or distention is required. The tightening of the ligature should be done during anæsthesia, for this part of the operation is painful.

The mode of procedure is to enter the needle on the anterior and outside of the scrotum, near to the top of the mass of varicose veins; then traverse the scrotum completely, so that the needle shall pass behind the veins and make its exit on the opposite side. Then reënter the needle at the orifice of exit, and pass it in front of the veins and bring it out at the original point of entrance. Thus the veins are completely surrounded by the ligature. The ends of the ligature are now passed through the hole in the centre

of the circular, flattened disk, drawn tightly, and tied over the section of rubber tubing. The rubber tubing should be large enough (say a half to three-quarters of an inch in diameter) to allow of a certain amount of springing motion. If no elastic material be used, the ligature would do its work for a short time just after being applied or tightened, and then it would be comparatively



useless until such time as it was tightened again. But if the ligature be drawn down tightly over a section of rubber tubing, the gradual expansion keeps the ligature constantly tense and up to its work. Then, as the ligature remains, and is tightened from time to time, whenever the expansive power of the tubing is exhausted, it gradually cuts the vessels, and so works its way out. Instead of the rubber tubing, a piece of ordinary erasing rubber, bent so as to act as a spring, may be substituted. The process ought to be completed in a week's time, or less. If it is not, it is because the ligature has been neglected, and allowed to remain so lax that it could not do its work. It should be tightened every day, or the result will be needlessly delayed.

I introduced this operation several years ago, and have resorted to it without hesitation, in both hospital and private practice, and have always found it very effectual. It is easy of performance, involves no especial danger, and is an operation upon which reliance may confidently be placed.

Incarcerated Femoral Hernia—Its Partial Reduction by Taxis.

I have a patient, a female, aged about thirty-five years, who this morning walked some distance to the hospital, suffering with an enlargement in the left groin—a hernia. Some exposure being necessary in the examination of this case, I have had the woman etherized before bringing her into your presence, as it is never well to disregard the sensitiveness of any patient.

In giving her history, the woman states that she has had slight hernia for many years, but that the mass has never been so low down nor so large before. On former occasions the tumor has been small, and she has repeatedly been able to reduce its size by her own efforts, but this time the mass has proven itself to be irreducible by the ordinary means which she was able to employ. She also states that the mass has been in its present condition since last Thursday (six

days), and that there has been no motion of the bowels since that time.

On examination, I find a tumor in the groin, a little below Poupart's ligament, which has apparently emerged from the saphenous opening. I find that the tumor is hard, and that it is resonant on percussion, thus showing that a portion of the intestine is really contained in the mass, though there is also a considerable amount of dense tissue, and perhaps omentum, which overlies the protruding portion of the gut. There has been no vomiting, either of the contents of the stomach or of the intestinal tube; no pains resembling colic in the umbilical region; and the tumor exhibits no evidence of high inflammation or mortification of the gut. We have, then, simply an incarcerated hernia without strangulation. It is a form of hernia in which the symptoms are not urgent enough to justify an immediate operation, which would not be free from danger, without first employing the simpler means of treatment, which are often effectual. The attempt will be made, then, to accomplish a reduction of the mass by taxis.

In performing these manipulations, a great deal is to be gained by placing the body in a proper position. The hips should be somewhat elevated, and the shoulders rest low, to give the parts the advantage of gravity. The legs should be well drawn up, and the thigh of the affected side adducted and rotated inward, to relax the tissues at the point of constriction as much as possible. The anæsthetic also aids in the relaxation of the parts. The observance of these preliminaries renders reduction by taxis easier and much more certain.

If the taxis is judiciously employed it can seldom be attended with anything except good results; but if it be rude or unskillful, it is sure to increase the danger and exaggerate whatever symptoms may be present. Violent efforts should never be made in endeavoring to return the gut. Good taxis is always moderate and steady. Do not take hold of the mass and attempt to push the intestine right back into the abdominal cavity, or your efforts will but produce a valve-like closure at the seat of stricture. Rather grasp the mass and endeavor to draw it forward, and, if possible, empty the intestine of its contents and the sac of its serum, and then the protrusion may readily be reduced.

The amount of manipulation which any case of hernia will tolerate is exceedingly variable. If there is violent inflammation, and there are strong adhesions between the bowel and proper hernial sac, taxis of any kind is dangerous. If the case be one of incarcerated hernia, with symptoms which are not particularly urgent, like the one before you, the manipulations may safely be somewhat prolonged in character. It is frequently a better plan, however, to repeat the attempts at reduction from time to time, than to make one continued taxis; for in this way a little is gained at each attempt, and by persistent efforts an operation may be ultimately avoided. Should there be gas or fecal matter imprisoned within the bowel, its escape, which will be marked by a peculiar gurgling sound, that is not easily mistaken, may be effected by persistent efforts at reduction.

In this woman there is evidently some gas confined in the protruding portion of the bowel, for my manipulations give rise to this peculiar gurgling sound. The sound is not as distinct here as I have heard it, but is sufficiently so to be recognized. By working carefully and patiently, in the way which I have already indicated, I find that the mass is gradually growing smaller, as, I think you all see, I have really reduced the size of the tumor considerably, and I feel confident that I have succeeded in returning the intestine to its proper cavity. All the parts which originally came down have not yet been returned to the abdomen; some of them still remain in the sac; but the mass is reduced down now until we have nothing remaining in this unnatural site except some old, hard, indurated and thickened tissue, with, perhaps, a portion of the omentum. At some future time we may attempt a further reduction, but for the present we have done enough. The bowel will be prevented from coming down again by the application of an appropriate truss or bandage.

Equino-varus—Operation and a Mode of After Treatment Without the aid of Mechanical Appliances.

I have a case of club-foot, of the variety called equino-varus. It occurs in this boy of about ten years of age, and affects only one side.

You will notice, by comparing one leg with the other, that the left is considerably wasted, and that the ankle appears very much weaker than its fellow of the opposite side. There is also a contraction of the tendo-Achillis, a somewhat palsied condition of the peronei muscles, and tension of the plantar fascia. The ligaments upon the inner aspect of the foot are shortened and somewhat more compact. The bones of the tarsus, and especially the astragalus, have been twisted, or changed in position, so as to give the foot a slightly curved or warped appearance.

The operation usually performed for the correction of this deformity is the division of the tendo-Achillis and of the plantar fascia. In case there is any resistance offered, however, by the long extensor tendon of the great toe, this must also be divided. In this case, the tendon of the extensor proprius pollicis is not unduly contracted. All I shall do, then, is to divide the tendo-Achillis and plantar fascia.

Tenotomy may be performed by a variety of knives, but the one which I prefer is the ordinary round-pointed tenotome. This instrument is all that is necessary. Both the puncture and the division of the tendon can be easily effected with it.

The operation is a simple one, and in performing it, which is done under the influence of an anæsthetic, it is immaterial whether you enter the knife above the tendon, and cut from above downward, or whether you enter the knife below the tendon and cut within outward. I am in the habit of entering the knife below the tendon, and will do so here. With the patient, then, lying upon his belly, and the tendo-Achillis tense, from the forcible flexion of the foot, I easily accomplish complete division by a slight sawing motion of the knife upon the tendon. I divide the plan-

tar fascia in the same way, and here again it is immaterial whether the division takes place within outward or from without inward. I now bring the heel down, by extreme or forced flexion, and the foot into its proper position by main force.

The operation is only a small portion of the treatment necessary to produce a permanent good result in any variety of club foot. A great deal depends upon the care and attention which is bestowed upon the after treatment. If this be neglected, the results will surely be unsatisfactory.

A great variety of mechanical appliances have been used, with a view of gradually moulding and shaping the parts into a more seemly condition. These contrivances are all very well, and they have proven themselves of very great value in the treatment of talipes. In this boy's case, however, I shall trust to adhesive strips, and to systematic manipulation; for I am inclined to think that his foot can be brought into a very good position without the aid of any mechanical appliance.

Massage will be practiced daily. The manipulations will be thorough and systematic in character. They will be performed, not only with a view of correcting as much as possible the deformity of the foot, but also of increasing the strength and tone of the partially atrophied muscles of the leg. Besides this systematic manipulation of the parts, I purpose retaining the foot in its proper position by the application of strong adhesive strips. These strips will be broad (two to two and a half inches), and so applied as to draw the foot well outward at the same time that it draws it upward. To accomplish this, first secure the adhesive strip well in position, by causing it to encircle the ball of the foot; then carry it up the outer side of the leg, and draw it as tightly as may be necessary. Over this a bandage will be placed; lightly over the foot, and a little more firmly over the leg, to keep the strips from slipping. This is a very simple way of treating the lower degrees of equino-varus, but it holds the foot in a very good position, and I am in hopes of producing a good result here without the aid of an expensive apparatus.

MEDICAL SOCIETIES.

COLLEGE OF PHYSICIANS, PHILADELPHIA.

At the regular meeting of the College, on March 5th, a paper

On the Relation of Sewer Gas to Typhoid Fever

was read by Dr. George Hamilton. The following extracts will indicate the speaker's views:—

Centreville, Pa., my location in the country for more than ten years, was upon the ridge separating the Brandywine and Red Clay Creeks; distant seven miles from Wilmington, seven from Kennet Square, four from Dupont's, and eleven from West Chester. The surrounding country, rolling or hilly, abounded, in nearly every direction, with springs of fine water. In this rural section began my first bedside experience in

typhoid fever, and the occurrence in my practice of four cases of intestinal perforation in the space of twelve consecutive months, may but too well attest the character of the prevailing epidemic. It was not, however, until after five years' practice in this vicinity that typhoid fever developed itself; the usual form of fever in earlier years of practice having been bilious remittent, which, like the typhoid, at times assumed an epidemic character, and proved nearly as fatal as typhoid, while in other seasons but few cases occurred, the local conditions remaining essentially the same from year to year.

The change from bilious remittent to typhoid fever was, naturally enough, not abrupt, some of the symptoms of the former gradually giving place to those of the latter. In mode of progression there was a close resemblance between them; either disease showing itself upon an elevated plain, on the brow or slope of a hill, or in the vale below, with, perhaps, a slight preference for the latter; while the mansion of the opulent farmer would, in turn, be visited, with the home of the humble cottager.

The speaker mentioned several outbreaks of typhoid in this locality, and proceeded:—

As to the origin of these widely diffused, destructive epidemics, nothing could be said in explanation, except that, as a rule, a warm, moist spring, and, as a sequence, excessive growth of vegetation, followed by a hot, dry summer, appeared to favor the development of typhoid; just as had been noticed in former seasons in regard to bilious fever. In relation to the influence of local conditions, it may be said that in an old, long cultivated section, changes in these conditions rarely occur, and certainly nothing of this kind did occur that could explain the ravages of fever in one year and its absence or slight character the next; and hence the physicians of that section, so far as I knew, were nearly of one accord in regarding atmospheric, hygrometric, electric, or telluric conditions as the sources of the presence or absence, and of the violence or mildness, of the epidemic.

On returning to the city, thirty-three years ago, a location for practice was chosen at Sixteenth and Summer streets, and has thus continued ever since. At that remote period, intermittent, remittent and typhoid fever prevailed to a considerable extent, especially between Broad Street and the Schuylkill. Not one of these types can now be seen so often, in proportion to population, as during the earlier years of my practice in this locality.

Some years after returning to the city, Prof. J. K. Mitchell was called to consult with the late Dr. Gebhard and myself, in a severe case of typhoid fever near my residence. This was at a period when bilious remittent was being gradually supplanted by typhoid fever. Dr. Mitchell then stated to us that nearly all the cases of this disease seen by him were in consultations in the suburbs of the city, as in the case in which he met us, for at that time the locality was but a suburb; yet, in the suburbs at that period there were but few sewers or cesspools, and, as to water-closets, they were not to be found there; while on the contrary, in his own vicinity (Eleventh and Walnut Streets) they existed in all

directions, and yet, as he informed Dr. Gebhard and myself, he scarcely ever saw typhoid fever in the families under his immediate care. Again, the late Dr. Wm. W. Gerhard, prominent as an authority in typhoid fever, informed me, about six years before his death, that he no longer regarded typhoid fever as either so prevalent or so fatal in this city as it had been in former years; that some modification of the disease, from unknown causes, had occurred, just as he had witnessed many years previously in Paris, where typhoid fever in some of the hospitals had gradually changed in character, until, from a mortality of one in three patients, only one case out of seventeen attacked terminated fatally. With the statements and opinions thus expressed, my own observations and experience fully accord.

During thirty-three years of practice in the city, four cases of typhoid fever, occurring in one family, have come under my care; in two or three families, two persons in each have been affected; yet, setting these aside, one case only in any family coming under my observation has occurred. This is in striking and most favorable contrast with what, as before stated, often happens in epidemic typhoid in the country, where no sewer gas or obstructed drains are to be found in explanation of this difference. The increase in the number of sewers, water-closets, and cesspools, in Philadelphia, for some years past, has been simply enormous; and consequently the opportunities for contamination of the atmosphere, water, or milk, correspondingly augmented. If (as some have asserted) sewer gas is the most potent and common cause in the production of typhoid fever, and if so large a proportion of the houses in the city are infected by it, would we not have, in a population of nearly nine hundred thousand inhabitants, cases almost without number, and deaths in proportion, far more than quadruple the average number reported by the Board of Health?

Physicians have long differed in opinion in reference to the conditions under which typhoid fever is likely to occur, and in regard to the influence exerted by the various agents known, or believed, to play a part in the production of this disease. While many, at the present moment, are disposed to accept the opinion that in an atmosphere contaminated by sewer gas, or effluvia arising from cesspools, or decaying animal or vegetable matter, is to be found the ostensible cause of the disease; others are more disposed to refer it to the use of milk or water infected by the agents just named, and, in addition, to the consumption of food partially decayed. On the other hand, there are those who, while admitting the possibility or probability that certain limited outbreaks of typhoid may be referred to the local causes just named, are fully convinced that the widely spread and fatal epidemics witnessed at times in the country can be explained by no such agencies as those alluded to; neither do we think that a practitioner who has had the experience of a single season of epidemic typhoid fever in the country can refer to these agents as the cause of such epidemic, without rejecting the evidence of his own senses.

Dr. James Jackson, of Boston, long before Pettenkoffer, in explanation of certain erratic

and very restricted outbreaks of typhoid fever, ventured to suggest that, in the absence of any visible agency, some emanation from the soil, obscure as to origin, might account for them. Pettenkoffer, however, determined that in proportion to the elevation or depression of the water level in the earth was a greater or less prevalence of typhoid fever, without fixing any limit as to the extent of its influence. When we call to mind that, as before stated, a hot, dry summer is, as a rule, the precursor of an unusual amount of fever, either remittent or typhoid, the view of Pettenkoffer demands attention and earnest consideration; for, after laborious and protracted researches, he announces, definitely, that in proportion as the water level becomes lower, typhoid fever increases. That many epidemics of the fever appear without the possibility of assigning any special cause in explanation of their origin, is manifest, and no one is more prepared to admit this than the practitioner and medical writer of large experience. Whatever may be the cause or causes of the fever, when once established, contagion, especially when aided by the concurrence of certain indefinable, elemental and local influences, lends its all-powerful aid in its extension; this, at least, is the opinion of Bretonneau, Tronseau, Louis, Gendron, Chomel, and many other investigators of the disease in France, England and the United States; among the latter, Drs. Nathan Smith, James Jackson, Elisha Bartlett, and Austin Flint, Sr.

Of the writers quoted, nearly all recognize that very frequently the disease arises spontaneously, and while some of them admit that a limited number of cases may be due to emanations from sewers or cesspools, others, regarding typhoid fever as specific in character, claim that a specific cause is necessary to develop the disease; and that they find no sufficient evidence of such cause either in the respiration of the effluvia alluded to, or in the consumption of unwholesome food.

In the earlier part of this paper it was stated that the reports of the Board of Health of this city did not warrant the anxiety and alarm that exist in relation to sewer gas, as the chief agent in the production of typhoid fever; and without going into details, a few points only will be adduced in reference to this matter. The reports show that very often the deaths from this disease are more numerous in the winter months than during the hot weather of the summer. For example, in January, February, and December, of 1878, the deaths, in the order named, were 34, 32, and 33, while in July the deaths were but 23; yet this month, as shown by the record of the last ten years, is the hottest of the year, and consequently is the period when fermentation, decomposition and putrefaction are most actively engaged in evolving effluvia from animal or vegetable substances. This record of facts and figures may, by some, be regarded as inconceivable and perplexing, yet it finds its counterpart in the country, where during one entire winter the disease was unusually prevalent and fatal.

Quoting again from the Health Office reports, we find that in a series of years the weekly deaths from typhoid average but six or eight in a popu-

lation of nearly nine hundred thousand; and it should be remembered that this includes the deaths in the almshouses, prison, penitentiary, hospitals, house of correction, and all other similar establishments, making, at least, one-fifth to be deducted from the total reported.

The readiness of some physicians to attribute to sewer gas an attack of typhoid, if any smell denoting its presence in a house can be detected, is surprising, when every physician knows that this is only an exceptional event. To get over this difficulty it is now declared in some quarters that, although the smell be wanting, the gas is present, and capable of producing an attack. This is an unfortunate discovery, if it be a discovery; for it would follow from this, that, after much expense in the effort to banish gas where it was known to exist, from the sense of smell, it might still remain, although imperceptible, and keep the family in painful suspense. But have we any tangible and conclusive proof of this lurking, unforeseen danger, and, if it really exist, is it not remarkable that in the thousands of houses, where the odor is annoyingly perceptible, it appears to do so little mischief?

The sources of local contamination would seem to be infinitely more numerous in the city than in the country, yet without discouraging those who promise to stamp out disease. The real difficulty is when an epidemic of a violent and extended character starts up, as it has been known to do, in certain mountainous parts of Virginia and Tennessee, in their almost pristine condition, without the semblance of filth to account for its origin. It is evident, then, that whatever cases of typhoid fever may have been traced to sewer gas, or local contamination, some other cause or causes must be sought to account for the frequent and disastrous outbreaks in the rural sections; and this, it is clear, was in the mind of that sagacious observer and logical thinker, Dr. Charles Murchison, when he declared his belief in the origin *de novo* of typhoid fever, placing himself, in this point, upon the platform occupied by all the celebrities named in the earlier part of this paper.

Directing our attention once more to the health of our city, as exhibited by the Board of Health from week to week, we see no rational cause for anxiety or alarm; for while the deaths from pneumonia, for the last five weeks, have been very numerous, exceeding by far the total number caused by typhoid fever, diphtheria and scarlatina, taken together, the city, as to general health, may still be, as it has been for many long years, regarded as one of the most healthy of large cities.

(To be Continued.)

The American Medical Association

Holds its annual meeting next week, at Atlanta, convening on the sixth of the month. There is every reason to expect a full attendance from all parts of the country.

The MEDICAL AND SURGICAL REPORTER will be represented by Mr. GEORGE KEIL, who will also have charge of the other medical publications of this office. We have arranged to receive full, early and accurate reports of the session.

EDITORIAL DEPARTMENT.

PERISCOPE.

Suggestion for the Removal of Foreign Bodies in the Ears and Nose.

Dr. A. Couvert writes to the *Atlanta Medical and Surgical Journal*:—

The benefits of posture of head are not to be disregarded in removing heavy bodies, nor of drawing back the ear so as to straighten the meatus, nor of so keeping the point of the syringe pressed to one side as not to obstruct the out-flowing current with its freight of foreign matter; neither should it be inserted far into the meatus.

When I was a boy, I saw an old negro ("Uncle Sawney") blow a china-berry out of a little boy's nose, after a real doctor (not one of your patent medicine breed) had failed, in spite of his expert manipulations and glittering instruments. It was thus done. The boy was held, head and hands. Sawney's finger pressed the unobstructed nostril, to prevent escape of air; his open mouth covering the whole of the boy's mouth, he "blew him up," and then with a sudden puff brought out the berry, like a wad from a popgun. I came into the profession remembering Sawney, and have removed in the same way peas, corn, pretty-by-night seed, and other things, without blood, bawling, pain or trouble; but as the operator gets a splash of nauseous secretions in his face, I magnanimously operate by proxy, usually; only supervising an operation which, presto, confers the degree of doctor of *nose-ology* on several other Sawneys of different colors and races, who happen to be only lookers on "in Israel." I should add, this blowing by Sawney was done more than half a century ago, and I still follow it, *con amore*.

The Fungus of Typhoid Fever.

It is remarked in the *Lancet*, that the announcement of the discovery of the fungus of typhoid fever will be received with considerable hesitation by most of our readers, with the result of certain not very remote investigations in their minds. Nevertheless, a series of researches which have recently been published by Dr. Letzerich, of Braunfels, and which appear in the *Archiv für Experim. Path.*, are worthy of at least a passing notice. A year or two ago this observer announced the constant presence in the blood of persons suffering from typhoid fever of isolated micrococci and of spherules of protoplasm, which, under cultivation, speedily developed to micrococci, minute, round, or ovoid refracting corpuscles, moving in the blood-plasma, and possessing a great power of resisting the action of acids and alkalies. By the simple growth of these isolated bodies, there arise, it is said, spherules of protoplasm, in which appear myriads of first rods and then granules. In the height of the disease the blood from the arm contains, moreover, colonies of micrococci connected together irregularly, but these are believed to come,

not from the blood, but from the lymph spaces. Both the forms which are seen in the blood, the granules and spherules, wander through the walls of the vessels into the tissues, and in the nerve tissues they are said to cause signs of irritation.

Many experiments were made upon rabbits by the injection of the organic bodies from the typhoid stools. By allowing the stools to stand in glass cylinders, and repeatedly washing, a layer a few millimeters thick was at last obtained, containing a large proportion of micrococci. The injection of this caused in rabbits a typhoid-like illness, lasting a fortnight, ending sometimes in death, and presenting after death enlargement and induration of Peyer's glands, and great swelling of the mesenteric glands. The appearances were the same whether the poison was given by the mouth or by hypodermic injection. In the latter there was first an infection of the neighboring lymphatic glands, due to a growth of organisms and increase of cells. By the extension along the lymphatics these micrococci become generalized, and post-mortem they may be recognized everywhere in the system.

The Treatment of Infantile Paralysis.

During the acute or febrile stage, Dr. Simon, of Paris, recommends the use of the vapor bath, administered to the patient in bed, diaphoretics and soothing draughts, with dry cupping or flying blisters to the vertebral column. When the disease has entered on its second stage, and the paralysis is localized, frictions and kneading. Electricity should also be persevered in; the continuous current is best, very weak, and applied from above downward, with precaution. At the same time, fresh air, sea or sulphur baths, quinine, cod-liver oil in the winter, and arsenic in the summer. Gymnastic exercises for the affected limb. In fact, for this stage of the malady the various means calculated to stimulate the muscles or the nervous system should be employed successively or in combination. In the third stage, when deformity has occurred, recourse must be had to orthopædic apparatus. Dr. Simon rejects tenotomy absolutely in cases of paralytic club foot, the only result of the operation being to do away with the action of the only muscles which can serve the child as support.

Intermittent Broncho-pneumonia.

Mr. Cripps Lawrence, at a meeting of the Harveian Society, of London, in February, read a paper on this form of broncho-pneumonia, which he described as an anomalous form of hyperæmia of the lung. A number of cases were related. The first was a boy, aged 15, who had smallpox, followed by measles, after which lung disease on the right side set in. There were the usual evidences of inflammation of the lung, but with a marked difference between the morning and evening temperatures. The temperature once reached 104°, the pulse being 120, and the

respirations 28. The variations of temperature were constant, as well as considerable. There was dullness with crepitation, first on the right side and then on the left. The patient made a steady progress to convalescence. In a second case, there were cough, with pyrexia, and some dullness at the upper portion of the right scapula. Then a small patch developed at the top of the left scapula. The diurnal pyrexia was powerfully influenced by quinine given in full doses. In a third case, which was slight, and which was apparently due to the cutting of a drain, quinine was also of great value. In a fourth case, quinine also did good. The periodicity of the rise of temperature, he thought, indicated quinine. The treatment otherwise consisted of rest in bed, nutritive food, and jacket poultices, followed by cotton wool jackets when the poultices were abandoned. He thought these cases not lobar pneumonia, spreading by continuity, but a malarial malady, connected with swamps or excavated earth. He here produced a considerable mass of evidence in favor of this view. It had been found as a remittent paludal disease in some parts of France.

Absorption of Cataract Produced by Internal Medication.

In the *Gazette des Hôpitaux*, January 16, 1879, Dr. Tamanichef reports a case of a man, 48 years of age, of a strong plethoric constitution, who had a cortical cataract of the left eye, for which was prescribed protoiodide of mercury, which he took for a month and a half with good results. The treatment interfering with the patient's occupation, it was discontinued, and iodide of potassium given internally. Three or four months of this treatment was continued, when the patient began to read large typographical characters, but died suddenly, from apoplectic seizures. This and other well known cases, the author considers, prove the absorption of the opacified crystalline in cases of cortical cataract. In explanation of this mode of treatment, the author states that the remedies pass through the general circulation into the liquids of the eye, and operate immediately upon the inflammatory process of the crystalline. He quotes several cases, both in his own practice and in others, where cataract was spontaneously reabsorbed without any other lesions of the eye, with a view of calling attention to the different phenomena which the eye presents under the influence of internal remedies.

On the Treatment of Strangulated Hernia by Ergotine.

Dr. Planat, of Nice, has treated successfully two cases of strangulated hernia with ergot.

The first patient was a man, aged fifty, who suffered from a hernia which had been strangulated on the previous day. Ergot was applied both internally and externally, in the form of ointment, which was rubbed on the tumor every two hours, the latter having been previously washed with warm alkaline water. The internal treatment consisted of 5 grams of ergot, mixed with 125 grams of water and syrup, taken every hour. After this treatment had lasted four or

five hours, the vomiting ceased, and twelve hours later the hernia had become spontaneously reduced.

The second case was that of a young man, aged twenty-eight, who had worn a truss for several years before the hernial complication set in. The hernia had resisted all efforts to reduce it. Fifteen leeches had been applied to the tumor, but six only took; the symptoms then grew worse, and ergotin was again resorted to, being administered as above. Eleven hours later, when the surgeon arrived to perform the operation, in case the ergot had proved unsuccessful, the hernia was reduced, and the patient was well. The author suggests whether the drug would not be perhaps more efficient if directly injected into the hernial sac, and not taken internally.

Remote Results of Post-partum Hemorrhage.

On this point Prof. A. R. Simpson says, in the *Edinburgh Medical Journal*: It has always seemed to me that while the immediate dangers of hemorrhage are well understood and set forth in text books, its more remote risks have received less attention than they deserve. I have so often seen insanity, or phlegmasia, or pelvic inflammation, or general peritonitis arise in patients whose labors had been complicated with a flooding, that I was not surprised when the dreaded rise in temperature took place in our patient, and the abdomen began to be tympanitic. All precautions were taken to prevent any septic poisoning in this case, and if we are to assume such a poisoning, I do not know where to find its source. Seats of absorption, of course, there were plenty; but the patient's own discharges were not unhealthy, her canals being regularly syringed with an antiseptic lotion, and the hands, instruments, and sponges that were applied to her were all carefully cleaned. The case appears to me to illustrate the special proclivity to inflammatory affections of a woman who had suffered from an extensive loss of blood.

On the Prevention of Fatal Accidents from Using Anæsthetics.

Dr. Simonin gives, in the *Revue Méd. de l'Est*, 5 année t. x, No. 9, p. 261, the following three observations, which may be considered as very important if attended to. 1. Progressive peripheral insensibility, especially in the temporal region and the cornea. 2. The condition of the muscles and the jaws; the former must be in a complete state of relaxation, and the jaws closed. The adductor muscles of the lower jaw, therefore, form an exception to the rule, by being in a state of trismus. 3. The state of the pupil, which must be contracted, while the respiration becomes more normal, having been much quickened during the stage of excitement. All these phenomena are very important; they are synchronous, and must be carefully observed, as well as respiration and circulation. If the three symptoms cited should not appear coincidentally, they must be carefully watched for in various stages of the anæsthesia, because they are more to appear at a given moment.

Medical Uses of Nitro-glycerine.

Mr. W. Murrell reports, in the *Lancet*, January, 1879, pages 80, 113, 151, the results he has obtained from the exhibition of nitro-glycerine, as compared with nitrite of amyl, in angina pectoris. It was in 1858 that Mr. Field, of Brighton, and others, drew attention to the value of glonoine—nitro-glycerine, nitrate of the oxide of glycol, as it was variously named—in spasmodic affections, epilepsy, neuralgia, etc. At that time it was, and has still continued to be, a trustworthy agent in the hands of the homœopathist. It was found that glonoine produced the same effect upon the pulse as nitrite of amyl, but that, whereas the latter drug relaxed the vessels in fifteen seconds, and that a return to their normal condition occurred in a minute and a half, when glonoine was employed in proper doses relaxation took place more slowly, and a normal condition was not resumed for nearly half an hour; a series of carefully taken sphygmographic tracings well illustrate this fact.

Another remarkable result of the glonoine, seen in a patient with epispadias, was the great increase of urinary secretion, which "licked everything" he had ever taken. In a quarter of an hour after a dose more than an ounce and a half of urine was secreted in excess of his usual quantity. This man was peculiarly unsusceptible to the physiological effects of the drug, as far as subjective symptoms were concerned, complaining of no headache or throbbing; still the effect upon the pulse and urine was most marked. The cases of angina pectoris in which the drug was exhibited are fully reported, and the marked benefit that followed its use can leave no doubt on any mind that in glonoine the practitioner has a most reliable agent in this very serious and distressing complaint.

REVIEWS AND BOOK NOTICES.**NOTES ON CURRENT MEDICAL LITERATURE.**

—Dr. J. N. De Hart speaks of the microscope in its relation to medicine and cerebral pathology, in an article of twelve pages, from the *Chicago Journal*.

—The official report of Dr. E. O. Brown, physician in charge of the yellow fever hospital, Louisville Ky., 1878, makes a pamphlet of twelve pages, with elaborate tables and a map appended.

—Dr. Squibbs' little work, "Proposed Legislation on the Adulteration of Food and Medicine," is published by G. P. Putnam's Sons, and is for sale by Lindsay & Blakiston; price 25 cents, and it is well worth the money.

—In a pamphlet of 12 pages, Dr. J. W. Singleton, of Paducah, Ky., gives a sketch of the life of the late Dr. John L. Cook, of Henderson,

Ky. Dr. Cook was one of the noble army of martyrs who fell in the yellow fever epidemic last year.

—The difficulties and dangers of Battey's operation are well set forth in a reprint from the *Transactions of the American Medical Association*, by Dr. G. J. Engelmann, of St. Louis, who, in spite of them all, is an ardent advocate of the procedure.

—Part v of Dr. Duhring's "Atlas of Skin Diseases" embraces scabies, herpes zoster, tinea sycosis, and eczema vesiculosum. They are excellently illustrated, and the work gives great satisfaction as it progresses. For sale by J. B. Lippincott & Co.

—Through Messrs. Bailliere, Tindall and Cox, of London, we have a pamphlet of 16 pages, price one shilling, entitled "The Treatment of Dropsy of the Gall Bladder by Operation (Cholecystotomy)," by George Brown, M.R.C.S. It is illustrated, and gives the notes of a successful case.

—The Iowa and Illinois Central District Medical Association has commenced the issue of a quarterly report of their proceedings. We repeat our opinion that such publications are a mistake. They can never attain a wide circulation. The columns of a medical journal are the proper avenues to publish proceedings of medical societies.

—Mr. E. B. Treat, of New York, announces the approaching publication of a series of photographic illustrations of skin diseases, from negatives taken from life, accompanied by a descriptive text, calling attention to the diagnostic character of the various diseases, and giving practical suggestions for their treatment. By George Henry Fox, M.D., of New York.

—In a reprint from the *Chicago Medical Journal and Examiner*, Dr. E. Fletcher Ingalls discusses the question, how shall the degree of doctor of medicine be conferred? He suggests a central board of examiners, who shall send series of questions to all colleges, to be answered in writing by the students, and on these answers the decision be rested. This is a cumbersome scheme, not likely to be approved.

—Part I of an "Atlas of Histology," by Dr. E. Klein, F.R.S., and E. Noble Smith, M.R.C.S., has been issued from the press of Smith, Elder & Co., London, and J. B. Lippincott, of this city. Dr. Klein, whose merits as a histologist stand unrivaled, has contributed the text, and Mr. Smith has drawn and executed the illustrations. The present number begins with the blood and its histological elements, and the epithelium.

The Atlas will be completed in ten or twelve monthly parts, and will be sold at \$1.75 per part. It will unquestionably be an admirable production.

—Lippincott's Magazine, for May, opens with a brilliantly written and finely illustrated paper, by Mrs. Sarah Butler Wister, which propounds and answers one question, "Why do we like Paris?" In another illustrated paper, "From Norway to York," H. M. Robinson describes graphically canoe travel and transportation in the territory of the Hudson Bay Company. "The Tramp in Four Centuries," is a close but somewhat enigmatical study of a class which is commonly supposed to be a modern innovation, but which is here shown, on the evidence of curious unpublished letters, to have made its appearance on every occasion of social and financial revolutions. Other entertaining articles fill the number.

—Dr. T. M. Stevens, of Indianapolis, has had reprinted from the *St. Louis Medical and Surgical Journal* a strong attack against the pretended expert testimony of physicians in medico-legal cases. His opinions may be judged from the following extract:—

"We find that often experts may be honest, but ignorant; or they are rendered incompetent by dishonesty of purpose or by being confused or intimidated by counsel or surroundings. Now, in either of such cases they certainly were not, at that time, true experts.

"The time has come when, if the plan is permitted to continue, in spite of the warning and contrary to the wishes of the medical profession, then the gigantic evil of *false expert testimony* must cease, by some means; and if nothing else will stay its course, then the court record must be brought forth and arrayed before the profession, so that, if naught else will incite to *knowledge, honesty and courage*, fear of exposure must add its influence."

BOOK NOTICES.

A Guide to the Qualitative and Quantitative Analysis of the Urine. Designed for physicians, chemists and pharmacists. By Dr. C. Neubauer, of Wiesbaden, and Dr. J. Vogel, of Halle. With a preface by Prof. R. Fresenius. Translated by Elbridge C. Cutler, M.D., etc. Revised by Edward S. Wood, M.D. New York, Wm. Wood & Co., 1879. 8vo, pp. 551.

If there is anything in a fair array of names, the above titles should herald a solid production.

So they do; although it was hardly worth while placing Fresenius' name on the title page, seeing that his "preface" is but sixteen lines of the most formal matter, written twenty-five years ago, to introduce the first edition of the book. The title also gives the impression that the book is a joint product of Drs. Neubauer and Vogel, whereas it consists of two separate treatises, bound in one volume. That of Neubauer is "on the chemical and microscopical characteristics and properties of the urinary constituents, with a guide to the qualitative and quantitative chemical examination of normal as well as abnormal urine;" while the work of Dr. Vogel is on "the semeiology of human urine, together with a guide to the examination of urinary calculi and other urinary secretions." Thus the former gives the purely chemical, the latter the medical, view of the subject. There is, however, by this method, a certain amount of needless repetition, as we have noted in various instances, and a necessity for cross references, which is not desirable, and is annoying to the reader.

Apart from these criticisms on the form, the volume merits great praise. It is carefully translated and very handsomely printed. Plates of fine execution are added, as well as numerous illustrations. The chemical matter is thorough, and includes all that is certainly known on the subject.

Spermatorrhea; Its Causes, Symptoms, Results and Treatment. By Roberts Bartholow, A.M., M.D., etc. Fourth edition, revised. New York, Wm. Wood & Co., 1879.

The monograph of Dr. Bartholow has met with a favorable reception, and appears now with additions and such revision as were required to render it representative of the actual state of our knowledge of the disease in question.

A Clinical Treatise on Diseases of the Liver. By Fried. Theo. Frerichs. In three volumes. Vol. II. Wood's Library of Standard Medical Authors.

In the *REPORTER* for April 12th we noticed the first volume of the able treatise of Frerichs, and announced the early appearance of the remaining two. The present one has a neat colored frontispiece, and is in other respects well brought out. As a treatise widely esteemed on both continents, it will be read with interest and profit. The author's position in Berlin has allowed him most extensive clinical advantages, and his work still maintains the lead on the subject.

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A WEEKLY JOURNAL,

Issued every Saturday.

D. G. BRINTON, M.D., EDITOR.

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THE GROWTH AND WORTH OF THE METRIC SYSTEM.

The progress of the metric system in this country is agreeable to the friends of its introduction. Last February the New York State Medical Society, after hearing the proposition made by the chairman of this committee, voted the following resolution, presented by Dr. Castle:—

"Resolved, That the New York State Medical Society requests of those who present papers at its future meetings that the metric system be employed in their communications, and that this system be exclusively used in the published proceedings of this Society."

The following resolution was presented to the Medical Society of New York County, and it is urged that other county societies take like action:—

"Resolved, That the Medical Society of the County of New York request the medical boards of the hospitals and dispensaries to adopt the metrical system in prescribing, and that the faculties of the medical colleges in this city be also requested to order its adoption in their didactic and clinical departments."

The advantages claimed for the metric system are principally in two directions: first, that by

adopting it we bring ourselves into conformity with most European nations, and thus save endless trouble in the useless work of changing tables of one set of measures into another before we can compare them. Scientific results, expressed in scales of Fahrenheit's thermometer, in pounds, gallons and feet, can only be brought into comparison with those expressed in meters, liters and degrees of centigrade, after a very tedious and totally useless mathematical calculation.

Secondly, the metric system being on the decimal basis, is far more easy to subject to the processes of arithmetic than any other. Much may be said, indeed, in favor of the duodecimal system; and the ancient Assyrians combined them both in a highly ingenious manner, which certainly presents, for some lines of calculation, advantages over either alone. But the decimal is unquestionably better than any system which involves the handling of common fractions.

As to the basis of the metric system, it is, we regret to say, faulty and unscientific. It is vitiated with a mathematical blunder at its outset, and it seems hard that we should be called upon to perpetuate it. The meter was adopted first by the French Reformers, after the Revolution of 1789. Assuming that the globe is a body of invariable dimensions, they attempted the almost impracticable task of making a trigonometrical survey of a quadrant of the earth's surface, and completed their labors by constructing a standard meter, which should be exactly one ten-millionth part of the distance from the equator to the pole. Unfortunately, it has since been shown that these learned men were wrong in every particular. The earth is not invariable in dimensions, the equatorial circumference is not a perfect circle, so that there are different equatorial axes, and, therefore, different lengths in different longitudes; and, lastly, it has been proved that the survey made by the French physicists was incorrect, and accordingly the supposed perfect meter was erroneous, to the considerable extent of one part in 5527. When the latter fact could no longer be denied, it became necessary either to alter the assumed length, or to abandon its sup-

posed relation to the earth's dimensions. For obvious reasons the French Government decided in favor of the latter course.

Hence the unit of the metrical system is an imaginary one, found in no constant relation to the proportions of the globe or solar system, and not a whit superior to the English foot or the Hebrew cubit.

A truly scientific standard would be one based on some constant relation of the kind; and until such a one is established we may be permitted to look with moderate enthusiasm on the metric system. Its only solid recommendation is the convenience of comparison and calculation which it offers; but this is, as we have said, very great indeed.

NOTES AND COMMENTS.

Effects of Climate in Phthisis and Rheumatism.

Dr. H. Peters, of Saxony, has made a careful study of this subject, and his results are as follows:—

In chronic phthisis and chronic catarrhs of the respiratory organs, aggravation occurred on the colder days, and concurrently with a rapid fall in the mean daily temperature. It also occurred with a high atmospheric humidity, with a prevalence of northerly and westerly currents, and (contrary to the ordinary opinion) when ozone, or the substance giving the so-called "ozone reaction," was present in large amount in the air. The days on which no aggravation took place were those with low relative humidity, a greatly diminished mean relative humidity, a prevalence of southerly currents, and a low percentage of "ozone."

In the cases of chronic rheumatism the patients got worse when the mean temperature fell considerably from one day to the next day or days, when the relative humidity and the amount of "ozone" were high, and the wind blew from a westerly direction. They were unaffected, on the other hand, on days of high mean temperature, with a low relative humidity, and but little "ozone" in the air. With regard to barometric pressure, the only positive result made out in the chest cases was that in "the majority of the patients their disease was aggravated or much intensified on the days when the pressure was high." No positive conclusion, on the other hand, could be arrived at as to a con-

nection between aggravation of chronic rheumatism and pressure.

On Ophthalmia Neonatorum.

This affection is the subject of an article in the North Carolina *Medical Journal*, by Dr. Richard H. Lewis. He sums up the therapeutics as follows: If I were called on to define exactly the treatment I would specially recommend, I should say this: Cleanse the eyes in a careful and thorough manner, with a lotion composed of sulphate of zinc one grain, alum three grains, water one ounce, which, by the way, is the favorite remedy of the Surgeons of the Royal Ophthalmic Hospital of London, just as often as the accumulation of discharge demands, and every 12, 8, 6, or 4 hours, according to the severity of the case, instill into the eye a drop or two of a solution of nitrate of silver, of the strength of two grains to the ounce of water.

Under this treatment, if promptly undertaken and faithfully carried out, I am confident that very few cases would fail to recover completely.

The Physics of Emulsifying.

An English exchange states that Prof. Quinke, who has just published an essay on the subject, considers that the process is due to the expansion or widening out of thin soap films from the surface of the oil. The formation of these films causes vortices in the interior of the oil and in the adjoining fluid, which lead to the breaking up of part of the oil, and the formation of extremely minute drops. Very small quantities of soap—so small indeed as not to be recognizable under the microscope—are sufficient to cause the phenomena described. Fats which contain free fatty acids form solid soaps in a weak solution of soda, which dissolve in the fluid surrounding the oil drops, and spread over their surface. This film, or a succession of them, renders the surface of the oil drop immovable, and prevents the drops from coalescing, thus maintaining the condition of emulsion.

The Identity of the Poisons of Scarletina and Typhoid Fever.

An able London physician, Dr. G. de Gorrequer Griffith, maintains, in the *Medical Press and Circular*, that typhoid and scarlet fevers both arise from the same poison, whatever that may be. Erysipelas and puerperal fever he believes are probably also effects of the same toxic elements, the poison being one and the same, the symptoms or diseases resulting from it differing with the age, sex and condition of the patient.

CORRESPONDENCE.

Foreign Body in the Oesophagus.

ED. MED. AND SURG. REPORTER:—

For the encouragement of those who believe in nature's abilities, let me report the following case. A little girl, aged four years, was brought to my office in great haste by her mother, who stated that, while at play with some other children, they got her to swallow a piece of glass. She saw the child nearly choking, and in her fright took her by the shoulder and shook her severely, and it went down. As it had not cut or lacerated the mouth or throat, I quieted her fears as best I could, and ordered small doses of oil once a day. Three days after she passed at stool a small piece of glass, in shape like a bent elbow, each arm being seven-sixteenths of an inch long, with four moderately sharp corners. No other trouble.

I have long been in the habit of making strong applications of tincture of iodine to my erysipelas patients. I was lately (February, 1879) called to see a severe case, which had just had a relapse from convalescence from a previous severe attack, and the low condition of the patient, a young lady of twenty-five, made me fearful of the result. After painting the part affected (her face, neck and anterior scalp) well with tincture iodine, I ordered her ten drops in lemon syrup every three hours, combined with nux and belladonna. The third day she was convalescent again, and made a good recovery. I never heard of a similar use of iodine in such cases, and would like to know if it is new. I certainly shall try it again when I have opportunity.

Trenton, Mo.

C. A. FREEMAN, M.D.

Pleasant Means of Medication.

ED. MED. AND SURG. REPORTER:—

There is no point in practical therapeutics that tells more for a physician than his ability to render pleasant the remedies which he employs. This, indeed, seems to be an item in the rôle of practice but little thought of. Instead of becoming a vital consideration, the neglect of it, perhaps, lies at the root of more failures in practice than we imagine. Our ancestors might employ drugs in their crude and unshielded form, but the physician of this period must arouse himself to the fact that there are forces at work to-day which our forefathers could not foresee. Society has changed, and this link which unites with it the science of medicine must be tempered proportionally. We are not the sturdy, rough and ready nation we were a century ago—we have become more élite. The popular voice is for those elements which are at once agreeable and congenial.

Amid this changed condition, we, as progressing men, must be alive to the necessities and demands of those upon whom we are dependent. The objection to unpleasant medication meets us at every turn of professional life. It stands out as the stigma to our system of therapeutics, recognized by the popular mind universally.

Homeopathy—springing, as it did, from the

aberrations of an intellect of questionable sanity—owes most of its short-lived triumphs to that one plan in regular therapeutics. Many are the families who have preferred to risk the disciples of Hahnemann rather than take the disagreeable compounds so frequently prescribed by our own school. He who has looked into the history of medicine could not fail to have noticed the steady progress of scientific medicine, yet the wheels do not roll unclogged. There must be wrought a change, and it should be impressed upon the minds of practitioners and students of medicine from those centres of education, the lecture room and the press. Many a course of lectures upon *Materia Medica* and Therapeutics give but a general allusion to the various menstrua which should be employed to shield the different unpleasant drugs. How rare a thing is it to see in the journals of the country an article, either to arouse or to instruct upon this topic. I have recently perused the numbers of one of our leading periodicals for years back, without finding a line aimed in this direction. I take it as the duty of medical men to be zealous in recognizing defects wherever existing, that we may develop in medication a greater degree of perfection.

J. W. HICKMAN, M.D.
1945 N. 11th St., Phila.

Some Cases of Diphtheria.

ED. MED. AND SURG. REPORTER:—

I was called to attend Mrs. S., in confinement; delivered a healthy child. Six days after confinement the mother complained of sore throat. Her family attempted to treat without calling a physician. Two days later I was sent for; found a severe case of diphtheria. Up to this time the child had nursed, and was doing well; ordered child to be fed, and not allowed to nurse. It was also taken out of the house, to a neighbor. Two days later the mother's condition was much improved. Husband sick now with violent symptoms of diphtheria, local and general. One day later child was brought back to the house, with the remark that the baby has diphtheria. I turned to examine it; found throat and nostrils filled with diphtheritic membrane, and the breath terribly offensive. On one occasion I removed several large pieces of membrane from its throat, the membrane having become detached, but it soon reformed; child was eleven days old when it was taken sick (with diphtheria), and died from the disease six days after the commencement of the attack; mother and father recovered. Four of their relatives, who were in the habit of visiting the above family, were taken sick with diphtheria, in rapid succession, one of them severely, the others slight and moderately; all recovered. The points of interest to me were:

1. I have never heard of or saw a case of diphtheria in a woman who had been so recently delivered.
2. I have never seen or heard of a child suffering from diphtheria so young as this one.
3. Did the child contract the disease in utero?
4. Did it contract the disease through nursing (the milk)?
5. Did it contract the disease by breathing the contaminated air of the mother's bedroom?

6. Which was calculated to give the child the best chance for recovery, to allow it to continue nursing and depend upon the remedies used in the treatment of the mother to so affect the milk as to be beneficial to the child, or to do as was done in this case, rely upon artificial food and a separate and direct treatment? (The child was removed with the hope that it might escape an attack of the disease, and that it might not nurse.)

This case reminds me of a case of scarlet fever I saw in a woman (several years ago), who contracted the disease from some of her children which she had been nursing. When she was taken sick she was nursing at her breast a babe six weeks old. I at once ordered the babe to be fed artificially, and not allowed to nurse. This they did not do until the following day, when the child was taken away from its mother and not again allowed to nurse. Mother died on the fifth day of the disease. The child never contracted the disease, though the mother's case was a most malignant one.

Marshalltown, Iowa.

H. L. GETZ, M.D.

Type of Pulmonary Disease.

ED. MED. AND SURG. REPORTER:—

In the REPORTER of April 12th, page 316, I see a communication from Dr. Thomas M. Matthews, of Edom Texas, on "An Epidemic of Obscure Pulmonary Disease." I take occasion to say that this part of the country has been visited by an epidemic of a somewhat similar character, but more minutely and clearly described by Prof. Da Costa in the REPORTER of March 8th, page 208.

The catarrhal, the gastro-intestinal, the cerebral symptoms, the nervous disturbance, and the depression, are so clearly set forth in Prof. Da Costa's clinic upon the prevailing epidemic influenza at the Pennsylvania Hospital, and so nearly identical with the symptoms of the epidemic that has prevailed here from about the 7th of January, 1879 to the latter part of March, that I do not think it worth while to take up your time and space to recapitulate them. The epidemic here ranged from signs of ordinary coryza to severe cases of pneumonia.

In Dr. Matthews' communication he says that when the disease was properly treated, it was easily managed or controlled. I cannot say so much for the epidemic that prevailed in this section of the country, not drawing alone from my own experience, but from that of several of my neighbors, who I know to be educated and experienced physicians. The mortality has been extraordinarily large, and almost entirely among adults. Many persons have succumbed to this epidemic who were previously in poor health, and who were more or less debilitated from other causes. In fact, a large majority of the deaths were of this class of persons. When the cases were seen early, and the constitution and previous health good, they were easily controlled, and made a good recovery, where a little delay might have proved fatal. And let me state right here, that when good food and plenty of stimulants were given, I

met with the best results, and when patients objected to taking stimulants, or nurses failed to give the proper quantity, I had the hardest cases to manage. My treatment was a purgative sufficient to unload the bowels and portal circulation, followed by such remedies as are calculated to meet special indications as they arise, iron, quinia, cinchonidia, beef tea, whisky, wine and beer, and I have not yet seen a single case where over stimulation was productive of the least serious results.

J. CHEWRING, M.D.

Renault, Ill.

NEWS AND MISCELLANY.

The American Association for the Cure of Inebriates

Will hold its tenth annual meeting at the Hall of the Young Men's Christian Association, New York City, May 13th and 14th, 1879. Many important papers may be expected.

T. D. CROTHERS, Secretary

The Association of Medical Editors.

The annual meeting of the Association of American Medical Editors will be held at Atlanta, Ga., on Monday evening, May 5th, 1879. The annual address will be delivered by the President, Wm. Brodie, M.D., of Detroit. All editors of medical journals and publications are entitled to membership in the Association.

Sixth Decennial Pharmacopœia Convention.

The following notice has been issued:—

To the several Incorporated State Medical Societies, the Incorporated Medical Colleges, the Incorporated Colleges of Physicians and Surgeons, and the Incorporated Colleges of Pharmacy, throughout the United States:—

By virtue of authority devolved upon me, as the last surviving officer of the Pharmacopœia Convention of 1870, I hereby call a General Convention, to meet in Washington, D. C., on the first Wednesday in May, 1880, for the purpose of revising the Pharmacopœia of the United States.

For the information and guidance of all parties interested, I refer them to the rules adopted by the convention of 1870, to be found on page 11 of the Pharmacopœia of the United States, and request their compliance with the spirit and intention of the said rules.

JAMES E. MORGAN, M.D.,

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Proceedings of the Gross Banquet.

The committee who had charge of the banquet given to Dr. S. D. Gross, on April 10th, have published the Proceedings on the occasion, including the addresses, in a neat, muslin covered volume, adorned with a photograph of the eminent surgeon. The response of Dr. Gross gives a sketch of many interesting facts in his career, and many pleasant associations. The work can be had by enclosing the price, 50 cents, to the office of the MEDICAL AND SURGICAL REPORTER.

The Yellow Fever.

An eminent specialist in this disease, who has been passing some weeks in New Orleans, writes us, under date April 21st, that sporadic cases of the disease have occurred this spring in that city, in houses where there were cases last summer, but the disease has not extended beyond the immediate premises. One genuine case was imported from Rio Janeiro, reaching New Orleans on the 26th of March. He was taken to the Fever Infirmary, recovered, and was discharged on April 10th.

At a meeting of the Davidson Co., Tenn., Medical Society, at Nashville, in March, Dr. E. L. Drake maintained that the fever was an imported disease, and that it cannot originate under the climatic conditions of this country. He concluded with the following propositions on the subject:—

1. The danger of attacks from yellow fever is in proportion to the amount of the poison taken into the system.

2. There is a systemic toleration of the poison, varying with the vital resistance of each individual, and zymotic action is mainly concerned in the process of sporulation and fructification without the body and not within, until the line of vital resistance is broken down, when this process may come into active operation, as in other effete matter, without the body; otherwise it would seem impossible for a single human being to escape.

3. In the midst of an epidemic depopulation of rooms and avoidance of confined areas of stagnant air afford the safest personal prophylaxis.

4. Quarantine of the ordinary lading of vessels, cars and other vehicles, and of the baggage and clothing of travelers from infected districts, should be rigidly enforced until disinfection is thoroughly consummated. Cities and towns should quarantine against infected districts, but the open country need not be put under restriction, as the facts in the case of the refugee camp near Memphis abundantly prove. Camps of refuge should be provided at convenient distances from a city or town infected, and the entire population exposed to danger should abandon all enclosures and live in the open air.

Arkansas Medical College.

At a regular meeting of the "Little Rock and Pulaski County Medical Society," held at their rooms April 5th, 1879, the following faculty was elected to put into operation "the Arkansas Medical College," under the charter granted said school of medicine in the year 1874: William Thompson, M.D., Professor of Principles and Practice of Medicine, and Dean of Faculty. James A. Dibrell, Jr., M.D., Professor of Principles and Practice of Surgery and Clinical Surgery. D. H. Dungan, M.D., Professor of Materia Medica and Therapeutics. Edward Cross, M.D., Professor of Obstetrics and Gynecology. A. H. Scott, M.D., Professor of Anatomy and Ophthalmology. J. H. Southall, M.D., Professor of Nervous Diseases and Medical Jurisprudence. Claiborne Watkins, M.D., Professor of Chemistry and Pharmacy. J. M. Pirtle, M.D., Professor of

Clinical Medicine and Diseases of Children. J. J. Jones, M.D., Professor of Physiology and Secretary of Faculty. John R. Colburn, M.D., Demonstrator of Anatomy.

The Indiana Medical Bill.

The Indiana medical bill, after passing both houses of the Legislature, was vetoed by Gov. Williams. The sentiments of the profession at this outrage on science by "Blue Jeans Williams" may be judged from the following resolution, unanimously adopted at the annual meeting of the Knox Co. (Ind.) Medical Society, April 8th:—

WHEREAS, The protection of the life and the preservation of the health of the people are among the chief aims of good government, therefore,

Resolved, That we, in our capacity as physicians and surgeons, condemn the vetoing of the Medical Bill by Gov. Williams, as discreditable to himself, contrary to the spirit of the age, and derogatory to the dignity of the medical profession, as well as every other branch of science, and against the best interest of the people.

A Novel Partnership.

The Medical Society of Fairfield county, Connecticut, has been agitated over a professional question of a novel character. Some years ago Dr. Pardee, of South Norwalk, married a lady, and then paid her bills while she went to New York and attended lectures at the Homœopathic College. Having received her diploma Mrs. Pardee returned to South Norwalk, and the matrimonial firm conducted business together, the husband treating his patients according to the regular rules, and the wife securing a practice as a representative of homœopathy. Dr. Pardee's revolutionary conduct was soon brought to the attention of the County Medical Society. The charges brought against him were that he had carried homœopathic pills, etc., to her patients, and aided her in other ways. The matter has dragged along, as such cases are apt to do, going from the County Society up to the State Medical Society, and being then referred back, but at last the Fairfield county brethren have disposed of it by formally expelling Dr. Pardee.

Medical Fees in Prussia.

The Prussian Government proposes to do away with a fixed scale of physicians' fees, but to have a legal rate for the guidance of a magistrate when a charge is contested. This rate is as follows:—

For the first visit.....	2 marks (50 cents)
For subsequent visits.....	each 1 "
For a first consultation.....	5 "
For a second ".....	3 "
For a first office visit.....	1½ "
For a second ".....	1 "
For laryngoscopic, etc., examination.....	2 marks

For visits at night these fees are doubled or tripled. These are low rates, but in Germany science is cheap.

New Matter in Physiology.

Under this general heading Dr. W. H. Triplet, of Washington, delivered three lectures in this city last week. The points he brought out were as follows:—

First lecture. The law and the method of the animal circulation absorption, a rapid and easy process.

Second lecture. The portal and lymphatic circulations solved. The body of the higher animals one organ—it is cardiac—respiration its rhythmic movement.

Third lecture. The proofs of a great automatic reflex system of nerves to the vascular mechanisms for operating the circulation, in addition to the one of Sir Marshall Hall for operating the pieces of the bony skeleton.

The speaker's object was to bring into prominence the great physical laws of motion in fluids and gases, in their application to the development of organic form and the maintenance of the integrity of function. He illustrated his theme with the results of numerous experiments, and was listened to by an attentive audience.

Contributions in Laryngology.

Dr. Louis Elsberg, 614 Fifth avenue, New York, announces that he is preparing for the American Laryngological Association a report of what has been published in this country on laryngology and allied subjects, and will appreciate it as a favor if physicians will inform him of the title and publication of everything they have written on the subject of the throat, voice, etc.

Items.

—Dr. Lewis Windle, a physician of high repute in Chester county, Pa., died of heart disease, at Cochranville, on the 20th ult. He was sixty years old.

—Dr. Schliemann has invited Dr. Virchow and Dr. Linderschmidt, the greatest authority in Germany on prehistoric archaeology, to assist him in his excavations at Hissarlik. Dr. Virchow has accepted.

—An Illinois man sleeps every night on a spot of ground left bare for the purpose in his house, and has an attendant shovel clean earth over him, to take the place of bedclothes. He believes that in this way he guards against disease.

—A French journal states that the waters of the Dead Sea are about to be worked for potash, iodine, and bromine. The projectors calculate on delivering potassium chloride in London at 90 francs per ton, thus underselling the Stassfurt manufacturers.

—Dr. Charles Evans died, April 21st, at his residence, 702 Race street, Philadelphia, aged 77. He was the author of "Cases of Insanity," published in the *American Journal of Medical Science*, and was for twenty years attending physician to the Frankford Asylum for the Insane. Since the year 1861 he had retired from active professional life.

—The Cremation Society of England, a joint stock affair, has received a check. Secretary

Cross, of the Home Office, recently announced in the House of Commons that he will not sanction the proceedings of the company until they are approved by Parliament. English medical and legal circles object to cremation, because it destroys evidence of the cause of death.

—Russia is being transformed into one vast military barrack. It is now announced from St. Petersburg that from the commencement of the next scholastic year the Medical and Surgical Academy of St. Petersburg shall be transformed into a purely military medical establishment. The students, whose number will be limited to five hundred, will be regarded as public servants, and as such will have to take the oath of allegiance. They will all be taught gratuitously, being required, in return for this advantage, to serve eighteen months in the army for each year they pass in the academy.

QUERIES AND REPLIES.

Dr. J. D. Van N., of Ind.—Pierate or carbazotate of ammonia is given in doses of gr. ss-j, in pill form, three or four times a day. Dr. Slane, of India, has given as high as gr.vij in twelve hours. Its toxic effects in large doses are marked. (See Napheys' *Medical Therapeutics*, sixth edition, page 418, for particulars.)

Dr. L. G. A., of Ky.—Saccharated calomel is prepared by triturating one part of calomel with two of white sugar. The dose is governed by the amount of calomel required. It has been said by some that acrid properties are developed in the mixture.

Alvina.—The so-called "spruce gum," or "chewing gum," is not from the spruce tree, but from the "sweet gum tree," of the natural order *Hamamelaceæ*. But, in fact, most of the chewing gum sold is not from this or any tree, but is an artificial product, consisting substantially of paraffin sweetened with sugar. Its use is an unseemly and discreditable habit, but we are not aware that it is injurious to health.

Stella.—The consumption of fruit as a first course at breakfast is a praiseworthy custom, on sanitary grounds. We are glad to notice that it is growing in favor.

MARRIAGES.

BUECKING-WATKINS.—On Sunday, April 13th, at Chicago, Ill., by the Rev. L. Hoelter, of Evangelical Lutheran Emanuel Church, Dr. Edward T. Buecking, Professor of General, Descriptive and Surgical Anatomy, Bennett Medical College, Chicago, and son of Dr. T. Henry Buecking, Quincy, Ill., and Alona, daughter of Mr. T. Watkins, Chicago.

RANKIN-GARCIA y SALAZAR.—In Cuidad, Victoria, Capital of the State of Tamaulipas, Republic of Mexico, Sylvester Rankin, M.D., formerly of Buffalo, N. Y., and La Señorita Francisca García y Salazar.

WEAVER-KELLY.—On March 20th, at Ellsworth, Kansas, by Rev. Levi Sternberg, D.D., Myron H. C. Weaver, M.D., formerly of Huntington, Pa., and Miss Alice M. Kelly, formerly of Fulton Co., Pa.

DEATHS.

BROWN.—At Oneida, Knox Co., Ill., on Monday, April 21st, of chronic peritonitis, Benjamin F. Brown, M.D., in the 40th year of his age.

HUTCHINS.—On Wednesday, April 16th, at 796 De Kalb avenue, Brooklyn, Jeannie Morrow, daughter of Dr. Alexander and Mary P. Hutchins, aged 9 years and 9 days.